

[4910-13]

DRAFT 17 August 1995

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

[14 CFR Part 25]

[Docket No. ; Notice No.]

RIN:

Revision of Gate Requirements for High-Lift Device Controls.

AGENCY: Federal Aviation Administration, DOT.

ACTION: Notice of proposed rulemaking.

SUMMARY: The Federal Aviation Administration proposes to amend part 25 of the Federal Aviation Regulations (FAR) to revise the requirements concerning gated positions on the control used by the pilot to select the position of an airplane's high-lift devices. The proposed amendment would update the current standards to take into account the multiple configurations of the high-lift devices provided on current airplanes to perform landings and go-around maneuvers. The proposed amendment would also harmonize these standards with those being proposed for the European Joint Aviation Requirements (JAR).

DATES: Comments must be received on or before [insert date 90 days from date of publication].

ADDRESSES: Comments on this notice may be mailed in triplicate to: Federal Aviation Administration, Office of the Chief Counsel, Attention: Rules Docket (AGC-10), Docket No. [insert docket number], 800 Independence Avenue SW., Washington, DC 20591; or delivered in triplicate to: Room 915G, 800 Independence Avenue SW., Washington, DC 20591. Comments delivered must be marked Docket No. [insert docket number]. Comments may be examined in Room 915G weekdays, except Federal holidays, between 8:30 a.m. and 5 p.m. In addition, the FAA is maintaining an information docket of comments in the Transport Airplane Directorate (ANM-100), Federal Aviation

Administration, Northwest Mountain Region, 1601 Lind Avenue SW., Renton, WA 98055-4056. Comments in the information docket may be examined weekdays, except Federal holidays, between 7:30 a.m. and 4 p.m.

FOR FURTHER INFORMATION CONTACT: Don Stimson, Flight Test and Systems Branch, ANM-111, Transport Airplane Directorate, Aircraft Certification Service, FAA, 1601 Lind Avenue SW., Renton, WA 98055-4056; telephone (206) 227-1129; facsimile (206) 227-1320.

SUPPLEMENTARY INFORMATION:

Comments Invited

Interested persons are invited to participate in this proposed rulemaking by submitting such written data, views, or arguments as they may desire. Comments relating to any environmental, energy, or economic impact that might result from adopting the proposals contained in this notice are invited. Substantive comments should be accompanied by cost estimates. Commenters should identify the regulatory docket or notice number and submit comments in triplicate to the Rules Docket address above. All comments received on or before the closing date for comments will be considered by the Administrator before taking action on this proposed rulemaking. The proposals contained in this notice may be changed in light of comments received. All comments received will be available in the Rules Docket, both before and after the comment period closing date, for examination by interested persons. A report summarizing each substantive public contact with FAA personnel concerning this rulemaking will be filed in the docket. Persons wishing the FAA to acknowledge receipt of their comments must submit with those comments a self-addressed, stamped postcard on which the following statement is made: "Comments to Docket No. [insert docket number]." The postcard will be date stamped and returned to the commenter.

Availability of the NPRM

Any person may obtain a copy of this notice by submitting a request to the Federal Aviation Administration (FAA), Office of Public Affairs, Attention: Public Inquiry Center, APA-230, 800 Independence Avenue SW., Washington, DC 20591; or by calling (202) 267-3484. The notice number of this NPRM must be identified in all communications. Persons interested in being placed on a mailing list for future rulemaking documents should also request a copy of Advisory Circular No. 11-2A, Notice of Proposed Rulemaking Distribution System, which describes the application procedure.

Background

Section 25.145(c) of 14 CFR part 25 (part 25) of the Federal Aviation Regulations prescribes conditions under which it must be possible for the pilot, without using exceptional piloting skill, to prevent losing altitude while retracting the airplane's high-lift devices (e.g., wing flaps and slats). The intent of this requirement is to ensure that during a go-around from an approach to landing, the high-lift devices can be retracted at a rate that prevents altitude loss if the pilot applies maximum available power to the engines at the same time the control lever is moved to begin retracting the high-lift devices.

Prior to amendment 23 to part 25, the § 25.145(c) requirement applied to retractions of the high-lift devices from any initial position to any ending position, including a continuous retraction from the fully extended position to the fully retracted position. In amendment 23 to part 25, the FAA revised this requirement to allow the use of segmented retractions if gates are provided on the control the pilot uses to select the high-lift device position.

Gates are devices that require a separate and distinct motion of the control before the control can be moved through a gated position. The purpose of the gates is to prevent pilots from inadvertently moving the high-lift device control through the gated position. Gate design requirements were introduced into part 25 with amendment 23, which

revised § 25.145(c) to allow the no altitude loss requirement to be met by segmented retractions of the high-lift devices between the gated positions. Amendment 23 specifies that the no altitude loss requirement applies to retractions of the high-lift devices between the gated positions and between the gates and the fully extended and fully retracted positions. In addition, the first gated control position from the landing position must correspond to the position used to establish the go-around procedure from the landing configuration.

In this notice, the FAA proposes to update the gate design standards to clarify which positions of the high-lift device control should be gated and to harmonize these standards with those being proposed for the European Joint Airworthiness Requirements (JAR-25). The proposal contained in this notice was developed by the Aviation Rulemaking Advisory Committee (ARAC) and presented to the FAA as a recommendation for rulemaking.

The Aviation Rulemaking Advisory Committee

The ARAC was formally established by the FAA on January 22, 1991 (56 FR 2190), to provide advice and recommendations concerning the full range of the FAA's safety-related rulemaking activity. This advice was sought to develop better rules in less overall time using fewer FAA resources than are currently needed. The committee provides the opportunity for the FAA to obtain firsthand information and insight from interested parties regarding proposed new rules or revisions of existing rules.

There are over 60 member organizations on the committee, representing a wide range of interests within the aviation community. Meetings of the committee are open to the public, except as authorized by section 10(d) of the Federal Advisory Committee Act.

The ARAC establishes working groups to develop proposals to recommend to the FAA for resolving specific issues. Tasks assigned to working groups are published in the **Federal Register**. Although working group meetings are not generally open to the

public, all interested parties are invited to participate as working group members.

Working groups report directly to the ARAC, and the ARAC must concur with a working group proposal before that proposal can be presented to the FAA as an advisory committee recommendation.

The activities of the ARAC will not, however, circumvent the public rulemaking procedures. After an ARAC recommendation is received and found acceptable by the FAA, the agency proceeds with the normal public rulemaking procedures. Any ARAC participation in a rulemaking package will be fully disclosed in the public docket.

Discussion of the Proposals

The FAA proposes to update the gate design standards to clarify which positions of the high-lift device control should be gated and to harmonize these standards with those being proposed for the European Joint Airworthiness Requirements. First, the FAA proposes to re-codify the gate requirements of § 25.145(c) as a new § 25.145(d). Second, the FAA proposes to update and clarify the requirement that the first gated control position from the landing position corresponds to the configuration used to execute a go-around from an approach to landing. Third, the FAA proposes to clarify that performing a go-around maneuver beginning from any approved landing configuration should not result in a loss of altitude, regardless of the location of gated control positions. Fourth, the FAA proposes to add a statement to clarify that the "separate and distinct motion" required to move the high-lift device control through a gated position must be made at that gated position.

The existing gate requirements are contained in a separate, but undesignated paragraph at the end of § 25.145(c). To be consistent with current codification practices, the FAA proposes to re-codify these requirements as a new § 25.145(d). Re-codification would not affect the content or intent of the requirement..

Currently, § 25.145(c) requires the first gated control position from the landing position to "correspond with the high-lift devices configuration used to establish the go-around procedure from the landing configuration." The wording of this requirement implies that airplanes have only one configuration that can be used for landing and one configuration that can be used to perform a go-around maneuver. Modern transport category airplanes, however, typically have multiple configurations that can be used for performing a landing or a go-around. Airplane manufacturers provide multiple landing and go-around configurations to optimize an airplane's performance for different environmental conditions (e.g., field elevation and temperature) and for non-normal situations (e.g., inoperative engines or systems).

To provide for airplanes with multiple landing and go-around configurations, the FAA proposes to revise the portion of the gate requirements relating to the placement of the first gated control position from the landing position by inserting the word "maximum" preceding "landing position" and by replacing "the high-lift devices configuration" and "the go-around procedure" with "a configuration of the high-lift devices" and "a go-around procedure," respectively. The FAA considered allowing the location of the flap gates to be made independent of the go-around position; however, from a human factors standpoint, providing a gate at a go-around position assists the pilot in selecting the proper configuration for a maneuver that is usually unexpected and entails a high workload. The FAA considers that requiring a gate at every approved go-around position would also be undesirable. Too many gates would make it difficult for the pilot to move the control through high-lift device positions that might not be used during normal operations. For go-around maneuvers using a different high-lift device position than the position that is gated, the gate can still serve as a guide for selecting the proper configuration (e.g., the pilot could move the control to the gate and either forward or backward one or more positions).

The FAA is proposing to revise Advisory Circular (AC) 25-7, "Flight Test Guide for Certification of Transport Category Airplanes" to provide additional guidance regarding criteria for locating the gate when the airplane has multiple go-around configurations. Public comments concerning this proposed revision to AC 25-7 are invited by separate notice published elsewhere in this issue of the **Federal Register**.

Regardless of the location of any gates, initiating a go-around from any of the approved landing configurations should not result in a loss of altitude. Therefore, the FAA proposes to further revise the existing gate standards to require applicants to demonstrate that no loss of altitude will result from retracting the high-lift devices from each approved landing position to the position(s) corresponding with the high-lift device configuration(s) used to establish the go-around procedure(s) from that landing configuration.

The existing § 25.145(c) also requires that a separate and distinct movement of the high-lift device control must be made to pass through a gated position. The FAA proposes to further clarify the gate design criteria in the proposed § 25.145(d) to specify that this separate and distinct movement can occur only at the gated position. This provision would ensure that the pilot receives tactile feedback when the control reaches a gated position. Although the FAA has always interpreted the current requirements in a manner consistent with this provision, this proposal will assist applicants by clarifying the part 25 design requirements for gated high-lift device control positions.

The amendments proposed in this notice have been harmonized with proposed amendments to JAR-25. The Joint Aviation Authorities intend to publish a Notice of Proposed Amendment (NPA), which, in combination with the proposed part 25 changes contained in this notice, would achieve complete harmonization of the affected portions of part 25 and JAR-25. When it is published, the NPA will be placed in the docket for this rulemaking.

Regulatory Evaluation Summary

Preliminary Regulatory Evaluation, Initial Regulatory Flexibility Determination, and Trade Impact Assessment

Proposed changes to Federal regulations must undergo several economic analyses. First, Executive Order 12866 directs that each Federal agency shall propose or adopt a regulation only upon a reasoned determination that the benefits of the intended regulation justify its costs. Second, the Regulatory Flexibility Act of 1980 requires agencies to analyze the economic effect of regulatory changes on small entities. Third, the Office of Management and Budget directs agencies to assess the effects of regulatory changes on international trade. In conducting these analyses, the FAA has determined that this proposed rule: 1) would generate benefits that justify its costs and is not a "significant regulatory action" as defined in the Executive Order; 2) is not significant as defined in DOT's Policies and Procedures; (3) would not have a significant impact on a substantial number of small entities; and 4) would not constitute a barrier to international trade. These analyses, available in the docket, are summarized below.

Regulatory Evaluation Summary

U.S. manufacturers currently design high-lift device controls in compliance with the proposed rule. Industry representatives indicate that U.S. manufacturers would not have to redesign high-lift device controls on either newly certificated airplanes or derivatives of currently certificated models. The costs of the proposed rule, therefore, would be negligible. However, the FAA solicits information from all manufacturers of transport category airplanes concerning any possible design changes and associated costs that would result from the proposed amendment.

The primary benefit of the proposed rule is the clarification of gate design standards of high-lift device controls. A second benefit is the harmonization of FAR certification requirements for controls on high-lift devices with proposed JAR

certification requirements. The FAA has determined that the proposed rule would be cost-beneficial.

Regulatory Flexibility Determination

The Regulatory Flexibility Act of 1980 (RFA) was enacted by Congress to ensure that small entities are not unnecessarily or disproportionately burdened by government regulations. The RFA requires a Regulatory Flexibility Analysis if a proposed rule would have a significant economic impact, either detrimental or beneficial, on a substantial number of small entities. FAA Order 2100.14A, Regulatory Flexibility Criteria and Guidance, establishes threshold cost values and small entity size standards for complying with RFA review requirements in FAA rulemaking actions. The Order defines "small entities" in terms of size thresholds, "significant economic impact" in terms of annualized cost thresholds, and "substantial number" as a number which is not less than eleven and which is more than one-third of the small entities subject to the proposed or final rule.

Order 2100.14A specifies a size threshold for classification as a small manufacturer as 75 or fewer employees. Since none of the manufacturers affected by this proposed rule has 75 or fewer employees and any costs of the proposed rule would be negligible, the proposed rule would not have a significant economic impact on a substantial number of small manufacturers.

International Trade Impact Assessment

The proposed rule will not constitute a barrier to international trade, including the export of American airplanes to foreign countries and the import of foreign airplanes into the United States. The proposed gate design requirements in this proposed rule would harmonize with those of the JAA and would, in fact, lessen the restraints on trade.

Federalism Implications

The amended regulations proposed in this rulemaking would not have substantial direct effects on the States, on the relationship between the national government and the

States, or on the distribution of power and responsibilities among the various levels of government. Therefore, in accordance with Executive Order 12612, it is determined that this proposal would not have sufficient federalism implications to warrant preparing a Federalism Assessment.

Conclusion

Because the proposed changes to the flap gate design requirements for transport category airplanes are not expected to result in substantial economic cost, the FAA has determined that this proposed regulation would not be significant under Executive Order 12866. Because this is an issue which has not prompted a great deal of public concern, the FAA has determined that this action is not significant under DOT Regulatory Policies and Procedures (44 FR 11034, February 25, 1979). In addition since there are no small entities affected by this proposed rulemaking, the FAA certifies, under the criteria of the Regulatory Flexibility Act, that this rule, if adopted, will not have a significant economic impact, positive or negative, on a substantial number of small entities. An initial regulatory evaluation of the proposal, including a Regulatory Flexibility Determination and Trade Impact Analysis, has been placed in the docket. A copy may be obtained by contacting the person identified under **FOR FURTHER INFORMATION CONTACT**.

List of Subjects in 14 CFR part 25

Aircraft, Aviation safety, Reporting and recordkeeping requirements.

The Proposed Amendments

Accordingly, the Federal Aviation Administration (FAA) proposes to amend 14 CFR part 25 of the Federal Aviation Regulations (FAR) as follows:

PART 25 - AIRWORTHINESS STANDARDS - TRANSPORT CATEGORY AIRPLANES

1. The authority citation for part 25 continues to read as follows:

Authority: 49 U.S.C. app. 1344, 1354(a), 1355, 1421, 1423, 1424, 1425, 1428, 1429, 1430; 49 U.S.C. 106(g); and 49 CFR 1.47(a).

2. Section 25.145 would be amended by revising paragraph (c), revising the text following paragraph (c)(3), and designating that text as paragraph (d) to read as follows:

§ 25.145 Longitudinal control.

* * * * *

(c) It must be possible, without exceptional piloting skill, to prevent loss of altitude when complete retraction of the high-lift devices from any position is begun during steady, straight, level flight at $1.1 V_{S1}$ for propeller powered airplanes, or $1.2 V_{S1}$ for turbojet powered airplanes, with -

(1) * * *

(2) * * *

(3) * * *

(d) If gated high-lift device control positions are provided, paragraph (c) of this section applies to retractions of the high-lift devices from any position from the maximum landing position to the first gated position, between gated positions, and from the last gated position to the fully retracted position. The requirements of paragraph (c) of this section also apply to retractions from each approved landing position to the control position(s) associated with the high-lift device configuration(s) used to establish the go-around procedure(s) from that landing position. In addition, the first gated control position from the maximum landing position must correspond with a configuration of the high-lift devices used to establish a go-around procedure from a landing configuration. Each gated control position must require a separate and distinct motion of the control to pass through the gated position and must have features to prevent inadvertent movement of the control through the gated position. It must only be possible to make this separate and distinct motion once the control has reached the gated position.